



City of Columbus
Mayor Michael B. Coleman

Department of Public Utilities
Tatyana Arsh, P.E. Director

RULE AND REGULATION 09-02
Division of Power and Water
Department of Public Utilities

February 2009

SUBJECT: CROSS-CONNECTION CONTROL

Pursuant to the authority granted under Columbus city Codes Section 113.01, the Director of the Department of Public Utilities hereby adopts, establishes, and publishes this rule and regulation to be effective at the earliest date allowed by law. This rule and regulation supersedes Division of Water Rule and Regulation 2000-1, published August 19, 2000, in the *City Bulletin* of Columbus, Ohio. This rule and regulation is in addition to any established requirements that have not been superseded or rescinded by this or any previous act.

Cross-connection control is intended to prevent the contamination or pollution of the public and consumer's potable water system. The rule and regulation addresses the elimination of control of existing cross-connections, actual or potential, between the systems, plumbing fixtures and sources or systems containing substances of unknown or questionable safety. Cross-connection control devices allow for the protection of public water supply system by isolating within the consumer's water system any contaminants or pollution which could backflow through the service connection.

APPLICATION

This Rule and Regulation shall apply to all properties served by the public potable water supply system of the City of Columbus.

I. WATER SYSTEMS

- A. For the purposes of this Rule and Regulation, the water system shall be considered as consisting of two parts; the public water supply system and the consumer's water system.
- B. The public water supply shall consist of the source facilities and distribution system, and shall include all the facilities of the potable water system under the control of the Administrator of the Division of Power and Water up to the point where the consumer's water system begins.
- C. The source shall include all components of the facilities utilized in the production, treatment, storage, and delivery of water to the public water distribution system.

Utilities Complex	910 Dublin Road	Columbus, Ohio 43215
Director's Office	614/645-6141 FAX: 614/645-8019	TDD: 614/645-6454
Power and Water Division	614/645-7020 FAX: 614/645-8177	TDD: 614/645-7188

Fairwood Complex	1250 Fairwood Avenue	Columbus, Ohio 43206
Sewerage and Drainage Division	614/645-7175 FAX: 614/645-3801	TDD: 614/645-6338

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- D. The public water supply distribution system shall include the network of piping used to deliver water from the source to the consumer's water system.**
- E. The consumer's water system shall include all parts of the facilities beyond the curb stop used to convey water from the public water supply distribution system to points of use.**

II. PLUMBING SYSTEMS

It shall be the responsibility of the consumer to have their water plumbing system compliant with the latest revision of the Ohio Plumbing Codes and the Columbus City Codes. The consumer shall retain records of installation, maintenance, testing, and repairs as required by this rule and regulation and the Columbus City Code Section 1113.01 for a period of five (5) years.

III. CROSS-CONNECTION PROHIBITED

- A. No water service connection shall be installed or maintained at any property where actual or potential cross-connections to the public potable or consumer's water system may exist unless such actual or potential cross-connections are abated or controlled to the satisfaction of the Administrator of the Division of Power and Water.**
- B. No connection shall be installed or maintained whereby water from an auxiliary water system may enter the public potable or consumer's water system, unless such auxiliary water system and the method of connection and use of such system have been approved by the Administrator of the Division of Power and Water.**
- C. There shall be no arrangement or connection by which an unsafe substance may enter the public supply.**

IV. WATER USE SURVEYS AND INSPECTIONS

- A. The owner/consumer's property shall be accessible at all reasonable times to the City of Columbus, Division of Power and Water or an authorized representative to perform a water use survey or to inspect or test backflow prevention assemblies within the property.**
- B. On request by the Administrator of the Division of Power and Water, or his/her authorized representative; the consumer shall furnish information regarding the piping system or water use within the consumer's property.**
- C. It shall be the owner/consumer's responsibility to arrange periodic surveys of the water use practices at their property to determine whether there are**

actual or potential cross-connections to the water system through which contaminants or pollutants could backflow into the potable water supply system. All cross-connection control, water use surveys or other plumbing inspections must be conducted by the City of Columbus, Division of Power and Water or an authorized representative.

V. WHERE PROTECTION IS REQUIRED

A. An approved backflow prevention assembly or method shall be installed on each service line to a consumer's water system serving properties where any of the following conditions exist:

1. Properties which have or have access to a second source of water.

2. Properties where any substance is handled which can create an actual or potential hazard to the public potable water supply system. This shall include properties having sources or systems containing process fluids or water originating from the public potable water supply system that are no longer under the quality control of the Administrator of the Division of Power and Water.

3. Properties having internal cross-connections that in the judgment of the Administrator of the Division of Power and Water are not correctable or where intricate or complex plumbing arrangements make it impractical to determine whether or not cross-connections exist.

4. Properties where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete cross-connection survey.

5. Properties supplied by more than one service.

6. Properties having a repeated history of cross-connections being established or re-established.

B. If the complete interruption of water through a given service is critical to the customer's operations, an installation of a backflow prevention assembly in parallel is required.

VI. TYPE OF PROTECTION REQUIRED

A. The type of protection required shall depend on the degree of hazard. The degree of hazard and appropriate backflow protection shall be determined by the Administrator of the Division of Power and Water.

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1. A "severe health hazard" classification shall mean an actual or potential threat of contamination of the water system that could be lethal. An approved fixed air gap separation shall be installed and maintained in accordance with this Rule and Regulation.
 2. A "health hazard" classification shall mean an actual or potential threat of contamination of a physical or toxic nature that would be a danger to health. An approved fixed air gap (AG) separation, an approved reduced pressure principle backflow prevention assembly (RP), or an approved pressure vacuum breaker backflow prevention assembly (PVB) shall be installed and maintained in accordance with this Rule and Regulation.
 3. A "non-health hazard" classification shall mean an actual or potential threat to the physical properties or the potability of the water system, but which would not constitute a health hazard as defined. An approved fixed air gap separation (AG), an approved reduced pressure principle backflow prevention assembly (RP) or an approved double check backflow assembly (DC) shall be installed and maintained in accordance with this Rule and Regulation.
- B. Below is a list of types of properties and the backflow requirements. This list was established as a guideline and is not to be used as a legal requirement without the approval of the Administrator of the Division of Power and Water. Updates to these requirements can be obtained by contacting the Backflow Prevention Program Office of the Division of Power and Water.

TYPE OF PROPERTY

REQUIREMENTS

INDUSTRIAL (as defined by the Division of
Power and Water)

RP

COMMERCIAL

Backflow protection at this service shall match the highest level of water-use hazard on site. However, if there is only one water-use hazard on site and in the opinion of the Administrator of the Division of Power and Water the make up piping to this hazard can be permanently isolated, an isolated backflow assembly approved for the hazard can be used in lieu of one at the water service.

RESIDENTIAL

With lawn irrigation or direct plumbing pool **RP****
****Air gap or Pressure Vacuum Breaker (where no potential for back pressure exists) can be used as isolation in lieu of an RP at the service, with approval from the Administrator of the Division of Power and Water.**

With water uses other than domestic **RP**

With second source water or access to **RP**
Second source water

THE FOLLOWING ARE TO BE PROTECTED AS LISTED, REGARDLESS OF THE TYPES OF ON SITE WATER-USE HAZARDS

Hospitals	RP
Mortuaries	RP
Medical clinic, office, etc.	RP
Nursing & convalescent homes	RP
Laboratories	RP
Sewage treatment plants & plumbing stations	RP
Storm water pumping stations	RP
Car washes	RP
Lawn irrigation	RP
Automotive repair & body repair shops	RP
Commercial lease accounts	RP
Full service restaurants	RP

Backflow Prevention Assembly Requirements Key

RP-Reduced Pressure Backflow Prevention Assembly
DC-Double Check Backflow Prevention Assembly
PVB-Pressure Vacuum Breaker Backflow Prevention Assembly

C. The type of protection required under Section V A 1, 3, 4, 5 & 6 of this Rule and Regulation shall be an approved fixed air gap separation or an approved reduced pressure principle backflow prevention assembly.

D. The type of protection required for the bypass line under Section V B of this Rule and Regulation shall be equal to the containment assembly required.

E. Fire protection systems or water storage tanks with chemicals added or the ability to be added shall install an approved reduced pressure principle backflow prevention assembly.

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- F. Fire protection systems or water storage tanks that cannot be subject to chemicals shall have an approved double check backflow prevention assembly installed.
- G. A reduced pressure detector assembly (ASSE 1047) and double check detector assembly (ASSE 1048) can be installed in lieu of a reduced pressure or double check backflow assemblies respectively. Note that all meter requirements are to comply with the City of Columbus, Division of Power and Water meter installation rules.
- H. This rule shall not supersede the City of Columbus, Division of Power and Water Rule that prohibits direct or indirect connections between the Columbus public potable water system and second source water systems that include, but are not limited to, wells, ponds or gray water.

VII. BACKFLOW PREVENTION ASSEMBLIES

- A. All backflow prevention assemblies as required by this Rule and Regulation shall be endorsed by the American Society of Sanitary Engineering.
- B. Installation of approved assemblies shall be made in accordance with Standard Detail Drawing and Rule Number 19002A/B and to the satisfaction of the Division of Power and Water Administrator.
- C. Maintenance shall be performed as recommended by the manufacturer of the assembly and this Rule and Regulation.
- D. A fixed proper air gap separation is defined as a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. The separation shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel and in no case less than one (1) inch.

VIII. TESTING AND MAINTENANCE

- A. It shall be the duty of the owner/consumer at any property on which backflow assemblies required by this Rule and Regulation are installed to have inspections, tests, maintenance and repair made in accordance with the following schedule.
 - 1. Fixed air gap separation backflow assemblies shall be inspected and tested at the time of installation and every twelve (12) months, or more frequently if required by the Division of Power and Water Administrator.

2. Reduced air pressure principle backflow assemblies shall be inspected and tested at the time of installation and at least every twelve (12) months, or more frequently if required by the Division of Power and Water Administrator, and rebuilt as needed.

3. Double check valve backflow assemblies shall be inspected and tested at the time of installation and at least every twelve (12) months, or more frequently if required by the Division of Power and Water Administrator, and rebuilt as needed.

4. Pressure vacuum breakers backflow assemblies shall be inspected and tested at the time of installation and at least every twelve (12) months, or more frequently if required by the Division of Power and Water Administrator, and rebuilt as needed. The owner/consumer shall visually inspect the installed assembly every three (3) months for conditions which would prevent the normal functioning of the assembly.

- B. Testing shall be performed by a contractor who is registered with the City of Columbus Building Regulations Department. The actual tester must possess an active Ohio Department of Health Backflow Prevention Assembly Tester's Certificate and be approved by the Division of Power and Water Administrator.

- C. Each backflow prevention assembly (including AG) shall have a tag attached listing the date of the most recent test, the name of the tester, the tester's certificate number, the company with which the tester is employed, the type and date of any repairs and the test results.

- D. The owner/consumer shall forward test and repair results to the City of Columbus, Division of Power and Water Cross-Connection Control and Backflow Prevention Office.

- E. The owner/consumer shall maintain a maintenance and test log and store it in a manner so that it will always be readily available to the Division of Power and Water or an authorized representative. The log shall include

1. Date of each test
2. Name and certificate number of the tester
3. Name of the company with which the tester is employed
4. Test results

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5. Repairs or servicing required
6. Repairs made and date completed
7. Servicing performed and date completed

F. Whenever backflow prevention assemblies required by this Rule and Regulation are found to be defective, they shall be repaired or replaced by the owner/consumer, at their expense, without delay.

G. Backflow prevention assemblies shall not be bypassed, made inoperative, removed, or otherwise made ineffective without specific authorization by the Division of Power and Water Administrator.

H. Test equipment used for initial, annual or emergency backflow prevention assembly testing required by this Rule and Regulation shall be calibrated at least every twelve (12) months by an independent calibration company.

IX. INSTALLATION

Backflow prevention assemblies required by these Rules and Regulations shall be installed at a location and in a manner approved by the Administrator of the Division of Power and Water and at the expense of the water consumer. For detailed instruction refer to Standard Detail Drawing 1-9002A/B.

X. ABANDONMENT

It shall be the responsibility of the owner/consumer at any property on which backflow assemblies are required by this Rule and Regulation to use one of the following methods when choosing to abandon a previously backflow protected system:

A. Interior backflow protected system (i.e. boiler):

1. Cut and cap the supply line AND remove backflow preventor.

B. Exterior backflow protected system (i.e. irrigation system):

1. Cut and cap the supply line inside the facility AND remove backflow preventor and the visible pipe outside the facility. This means pipe cut below ground level.


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2. Remove backflow preventor and the visible pipe outside the facility, cut pipe below ground level and install a hose bibb with vacuum breaker on the water line protruding from the facility.
3. Option two (2) above would allow the customer to keep their deduction meter, and deduct water used through the new hose bibb, provided they have a deduction account set up.


PENALTY FOR VIOLATION

- A. The Administrator of the Division of Power and Water shall deny or discontinue, after notice to the occupants thereof, the water service to any properties wherein any backflow prevention assembly required by this Rule and Regulation is not installed, or properly tested or if it is found that the backflow prevention assembly has been removed or bypassed, or if an unprotected cross-connection exists on the properties, required by this Rule and Regulation is not installed and maintained in working order.
- B. The Administrator of the Division of Power and Water shall immediately discontinue water service to any properties wherein a backflow condition exists or suspects to exist.
- C. Water service to such properties shall not be restored until the consumer has corrected or eliminated such conditions or defects in conformance with this Rule and Regulation and to the satisfaction of the Administrator of the Division of Power and Water.

APPROVED:


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Administrator
Division of Power & Water

2-19-09
DATE


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Department of Public Utilities

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